



INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 02430 PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/B 03/00791	International filing date ( <i>day/month/year</i> ) 04.03.2003	Priority date ( <i>day/month/year</i> ) 09.03.2002
International Patent Classification (IPC) or both national classification and IPC F16H57/02		
Applicant HANSEN TRANSMISSIONS INTERNATIONAL NV et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of    sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I    <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II   <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V   <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand  02.10.2003	Date of completion of this report  21.06.2004	
Name and mailing address of the International preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Hassiotis, V  Telephone No. +49 89 2399-7230  	

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International application No. **PCT/IB 03/00791**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-6 as originally filed

**Claims, Numbers**

1-9 as originally filed

**Drawings, Sheets**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	2-9
	No: Claims	1
Inventive step (IS)	Yes: Claims	3,6-9
	No: Claims	1,2,4,5
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

**see separate sheet**

**To Chapter V.2.**

Documents cited in the search report :

D1:US-A-3 648 533 (PARENTI GIORGIO) 14 March 1972 (1972-03-14)  
D2:US-A-5 588 328 (NIHEI RYO ET AL) 31 December 1996 (1996-12-31)  
D3:US-A-5 018 402 (ROERIG ARNOLD J ET AL) 28 May 1991 (1991-05-28)  
D4:US-A-4 025 136 (BALLENDUX GERARDUS M) 24 May 1977 (1977-05-24)  
D5:US-A-4 297 906 (COSTELLO KENNETH) 3 November 1981 (1981-11-03)

**V.2.1 Independent Claim 1**

Claim 1 is represented in such a general way that anyone of the cited documents D1,D2 or D5 can be used to show that all features of claim 1, as understood, are known, see for example in document **D2**, that clearly shows in figure 1 a

*gear unit (10) comprising*

- *a housing (12),*
- *two shafts (22, 18a) arranged parallel with one another and*
- *each supporting a helically cut toothed gear (14f, 14c), and*
- *two pairs of bearings (20, 24) supported by or relative to the housing in an arrangement in which each pair of bearings rotatably supports a shaft with the toothed gears of the two shafts being rotatable one relative to the other in mutual engagement, wherein*
- *two bearings (20, 24) of the two shafts lying to a common side of the inter-engaged helical gears are supported by*
- *a substantially common wall of the gear unit housing,*
- *one of said two bearings (20) being arranged to transmit to said housing wall section axial forces acting in a direction from the gears to the bearing and*
- *the other bearing (24) being arranged to transmit to said wall section axial forces acting in a direction from said other bearing to the gears.*

Therefore, the present application does not satisfy the criterion set forth in Article 33 (2) PCT because the subject-matter of independent claim 1 is not new in respect of prior art as defined in the regulations (Rule 64 (1)-(3) PCT).

**V.2.2. Claims 2,3, 5-9 depending on Claim 1**

**Claims 2,3,5-9** depending on claim 1 and having as subject-matter special embodiments of the invention according to claim 1 do not fulfil the provisions of the PCT (Art. 33 and Rule 6 PCT) since their validity is dependent on that of claim 1, which has been denied.

Further, the features of the following claims do not add new features or anything of inventive significance (in the sense of Art. 33 (3) PCT) to the subject-matter of claim 1, the features being -at least per se - known from the documents listed below:

- **claim 2:** Document D3; see figure 3 elements 22,24.
- **claim 5:** Document D2; see figure 1.

The dependent claim 9 is unclear, since it doesn't disclose any technical features but only the vague expression, as "*as hereinbefore described*".

#### **V.2.3 Independent Claim 4**

Document D5 which is considered to represent the closest prior art, discloses in terms of independent claim 4

*gear unit comprising*

- *a housing (10),*
- *two shafts (35,19) arranged parallel with one another and*
- *each supporting a helically cut toothed gear (25-34), and*
- *two pairs of taper roller bearings (38,37,20,21) supported by or relative to the housing in an arrangement in which each pair of bearings rotatably supports a shaft with the toothed gears of the two shafts being rotatable one relative to the other in mutual engagement,*
- *the taper roller bearings (20,21) of the one shaft being provided axially spaced in an X configuration in which the diameter of the bearing decreases progressively in the direction away from the other bearing of the pair.*

The subject-matter of claim 4 differs from this disclosure in that

- *the pair of the taper roller bearings of the other shaft being provided axially spaced in an O configuration in which the diameter of the bearing rollers of each bearing increases progressively in the direction away from the other bearing of the*

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*pair.*

The problem to be solved by the present invention may therefore be regarded as to provide a gear unit which is better able to resist the effect of axial forces arising in a pair of parallel shafts.

It seems that the subject-matter of present independent claim 4 does not satisfy the criterion set forth in Article 33 (3) PCT because the subject-matter of independent claim 4 does not involve an inventive step in view of an obvious combination of prior art documents D5 and D3 or D4. Because all documents are concerned with the same problem in the same technical field, and documents D3,D4 show a taper roller bearing in O configuration, a man skilled in the art would combine the teachings of these documents thereby coming to the solution as claimed without inventive skill.

**Further comments**

The closest prior art documents D2,D5 are not identified in the description and the relevant background art disclosed therein is not briefly discussed; therefore, the description does not meet the requirements of Rule 5.1 (a) (ii) PCT.

Reference signs in parentheses are not inserted in the claims to increase their intelligibility, Rule 6.2 (b) PCT. This applies to both the preamble and characterising portion.